



MP:150
Mobile Power Inverter

MP:300
Mobile Power Inverter

MP:500
Mobile Power Inverter

12v DC to 230v, 50Hz AC Mains Inverter
RINVD150 • RINVD300 • RINVD500

User Manual
www.ringautomotive.co.uk

RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE



Introduction

The Ring Digital Inverter is an electronic device that converts a low voltage 12v DC current from a battery, or other source, to 230 volts 50 Hz AC mains power.

Special attention should be made to **CAUTION** statements in this user's manual.

CAUTION statements identify conditions or practices that could result in damage to your Digital Inverter or to equipment that you are using with it.

Power Supply

The battery or power supply must provide between 10.5 and 14.5 volts DC (a 12v car or leisure battery will usually provide this) and must be able to provide sufficient current to operate the load (the item you require to power)

The power supply may be a battery or a regulated DC power supply. In order to find out if your power supply is big enough, divide the power consumption of the load (in Watts) by the input voltage (12v in the case of most vehicle batteries) this will give you the current (in amps) that the power supply must deliver.

EXAMPLE: Load is rated at 100 watts

Power supply must be able to deliver: $100 / 12 = 8.3$ amps

CAUTION THE RINVD150, RINVD300 OR RINVD500 MUST ONLY BE CONNECTED TO BATTERIES OR REGULATED POWER SUPPLY WITH A NOMINAL DC OUTPUT VOLTAGE OF 12 VOLTS. THE DIGITAL INVERTER WILL NOT OPERATE FROM 24V POWER SUPPLY.

Connecting to power supply

RINVD150

The RINVD150 Digital Inverter is fitted with a 12v power lead plug (internally fused) with 0.5m of cable for connection to the power lead socket in your vehicle. The tip of the plug is positive and the side contact is negative. Push firmly into the cigarette lighter power socket in order to ensure a good contact.

RINVD300 & RINVD500

The RINVD300 & RINVD500 Digital Inverter is fitted with two 4mm socket/screw connectors that enable connection to be made to a 12v vehicle or leisure battery. The red is the positive and the black is negative cable. The cables allow you to un-screw the socket screw on the Digital Inverter and connect according to the correct colour, the crocodile clamps should then be connected to a 12v leisure battery onto the correct terminals designated. Red (+) and black (-)

The RINVD300 only (not RINVD500) is also fitted with a 12v power lead (see RINVD150 for details).

Please check your appliance power consumption with rating of your power socket (typically 120 to 180 watts) when connecting the RINVD300 to the power lead plug. Above this rating connect directly to the battery

CAUTION DO NOT USE WITH POSITIVE GROUND ELECTRICAL SYSTEMS

The majority of modern cars have negative ground electrical systems. If you are in any doubt, please check with a qualified auto electrician or your local vehicle main dealer.

Connecting your Digital Inverter

Connect the Digital Inverter input to the vehicle/leisure battery using the cables (12v power lead for RINVD150 & RINVD300) supplied. Ensure the load requirements are within the parameters of the Digital Inverter output; plug your appliance into the socket of the Digital Inverter.

CAUTION Certain rechargeable devices are designed to be plugged directly into an AC socket to be recharged. These devices can damage the Digital Inverter. When first using a rechargeable device, monitor its temperature for 10 minutes to ensure overheating does not occur.

In some cases there can be an incompatibility between some appliances and modified sine wave inverters. When in doubt, consult with your appliance manual.

Fuse replacement

RINVD150 – 1 x 25amps

RINVD300 – 2 x 25amps

RINVD500 – 3 x 25 amps

Please consult a qualified electrician to replace any fuses.

Positioning of Digital Inverter

The following points should be noted:

- The Digital Inverter is not waterproof.
- The Digital Inverter should be placed on a ventilated flat surface.
- Do not put the Digital Inverter on or near direct heat or expose to sunlight.
- Do not place the Digital Inverter or around flammable environments.

Operating tips

Inductive loads such as TVs and Stereos (devices with a coil or transformer in it) may require more current to operate than a resistive load of the same wattage reading. Televisions may require several times their wattage reading to 'Start up'

This condition may require repeated ON/OFF switching of the inverter in order to get them started.

NOTE: Products providing heat, e.g. heaters, hair dryers, require a higher wattage to operate.

Check appliance details.

It is recommended that if you are using the Digital Inverter from your vehicle battery you regularly run your engine in order to recharge the battery.

Protective features

Low battery Protection – An alarm will sound when voltage from the battery drops to 10.6 volts. This indicates that the battery the Digital Inverter is running off requires recharging. The Digital Inverter will automatically shutdown if its voltage is allowed to drop to 10.5 volts.

Over Voltage Protection – The Digital Inverter will automatically shutdown if the input voltage exceeds 15 volts DC.

Reverse Polarity Protection – This product has reverse polarity protection. If connected incorrectly the product will not function.

Overload protection – The Digital Inverter will automatically shut down if the continuous draw exceeds its maximum rating

Temperature Protection – If the temperature of the internal heat sink reaches 65°C the Digital Inverter will shut down automatically. Allow to cool before using again.

CAUTION

- When connecting directly to a battery or other power supply ensure that you observe correct polarity
- Do not exceed the maximum input voltage (15 Volts DC)
- Do not remove the protective cover under any circumstances unless by a qualified electrician
- Improper use of this Digital Inverter could cause damage to property and could cause injury or loss of life.

Additional features of your Ring Digital Inverter

- 1.) Red LED – This lights up to indicate protection status, i.e. when the unit shuts down, please check the above protective features.
- 2.) Green LED - This lights up to indicate the power is on.
- 3.) Digital display – This display gives two readings that alternate every 2 to 3 seconds
 - a. Battery voltage input readout - This will be between 10.5 volts (at this point the Digital Inverter would shut down (see Low battery protection) and 15 volts (see Over voltage protection). Normally a fully charged battery will read between 12.7 and 13.5 volts. At 11.5 volts or below the battery is in need of recharging.
 - b. Power consumption wattage readout – This reading in watts shows the power being consumed. Care must be taken to keep the power consumption within the continuous power rating of the Digital Inverter. Be aware that the higher the power consumption the quicker it will drain the battery.

Specifications

Digital Inverter Model	RINVD150	RINVD300	RINVD500
Maximum power rating (5 mins)	150watts	300watts	500watts
Continuous power rating (4 hours)	120watts	240watts	400watts
Peak Power rating	300watts	600watts	1000watts
Standby current	0.15amps	0.25amps	0.30amps
USB output	5v, 0.5amp (USB2.0)	5v, 0.5amp (USB2.0)	5v, 0.5amp (USB2.0)
Waveform	Modified Sine	Modified Sine	Modified Sine
Input Voltage Range	11–15 Volts DC	11–15 Volts DC	11–15Volts DC
AC Socket	3 Pin Mains	3 Pin Mains	3 Pin Mains
Fuse	1 x 25 amp	2 x 25 amp	3 x 25 amp
Weight (kgs)	0.515	0.625	0.935
Dimensions (mm)	H55 L179 W113	H55 L179 W113	H63 L237 W140

Troubleshooting Guide

Symptom	Possible causes	Possible solution
AC appliance will not operate; the audible alarm is sounding.	1. Battery has discharged to 10v.	Turn off the inverter on/off switch and recharge the battery.
	2. The inverter has overheated. This could be due to poor ventilation.	Turn off the inverter and allow to cool for 10 mins.
	3. Poor battery condition	Replace battery.
AC appliance will not operate; the audible alarm is not sounding.	1. Inverter is overloaded.	Reduce load, not exceeding maximum rating.
Above symptom when using the 12v power lead plug on the RINDV300	2. Internal fuses have blown.	Fuse replacement (qualified electrician only).
	3. Fuse in power lead plug has blown.	Replace fuse in cigarette lighter plug - 15 amp.
	4. Vehicle fuse has blown as the maximum wattage using the power lead plug is typically between 120 and 180 watts.	Replace vehicle fuse and ensure if using power lead plug the wattage does not exceed maximum fuse wattage. Above this connect directly to the vehicle battery.
Run time is less than expected	1. Internal battery is not fully charged.	Recharge the battery.
	2. AC appliance power consumption is higher than expected.	Check AC appliance wattage rating is within scope of inverter.